

Lethality Enhancement

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The official link for this solicitation is:

<http://www.acq.osd.mil/osbp/sbir/solicitations/sbir20152/index.shtml>

Agency:

Department of Defense

Release Date:

April 24, 2015

Branch:

n/a

Open Date:

April 24, 2015

Program / Phase / Year:

SBIR / Phase I / 2015

Application Due Date:

June 24, 2015

Solicitation:

[DoD 2015.2 SBIR Solicitation](#)

Close Date:

June 24, 2015

Topic Number:

MDA15-004

Description:

The topic will study the incorporation of innovative reactive materials into a kinetic warhead to increase lethality. Emphasis will be placed on reactive materials that would achieve high reaction temperatures ($>4000\text{K}$) and generate high amounts of chemical energy ($>2\text{kcal/g}$) on impact. The need exists to develop and test reactive materials with varying densities from 1 g/cm^3 to 10 g/cm^3 as substitutes (with proper strength, ductility, etc.) for inner plastics, aluminum and steel components, etc. or as an add on structure. Proposed solution should enable design of material with specific reaction rates. Investigate cost effective fabrication technologies that are scalable to production. Proposer should tailor reactive materials and manufacturing processes to warhead applications. PHASE I: Analyze, evaluate and conduct feasibility experimentation of the proposed lethality enhancement materials including material characterization and fabrication. Complete preliminary evaluation of the process, technique or manufacturing technology showing improved performance and/or reduced inert mass. PHASE II: Design, fabricate and test prototype-scale device or components under conditions which simulate targets and velocities of interest. Demonstrate applicability to selected military and commercial applications. These activities will provide data validating the studies completed in the Phase I effort with the performance improvements. This will allow a more thorough assessment of the technology for missile defense applications. PHASE III: Conduct engineering and manufacturing development, test, evaluation, and qualification in a missile defense system or demonstrate operation in a system level test-bed with insertion planning for a missile defense application. Commercialization: The technologies developed under this SBIR topic would have applicability to areas such demolition and blasting, fusible links for electrical circuit

protection, combustible structures, cutting torches, etc. The technologies developed should also have applicability to defense industry as well as other potential applications such as commercial space flight and commercial industries which employ the use of energetic chemicals.